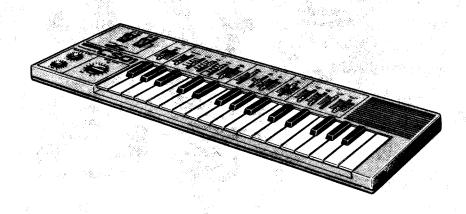
# YAMAHA

COMBO SYNTHESIZER
CS 01



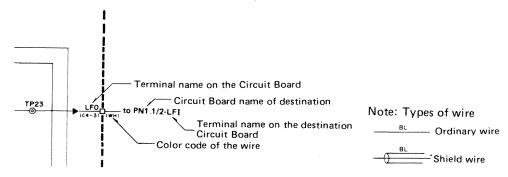
**SERVICE MANUAL** 

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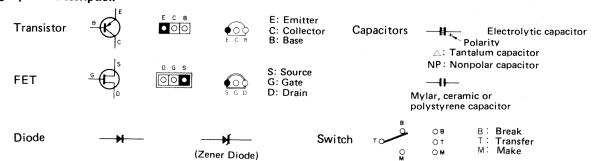
CORDING GUIDE
DISASSEMBLY PROCEDURE
SPECIFICATIONS
PANEL LAYOUT
PN CIRCUIT BOARD · BC CIRCUIT BOARD (BC1)
CHECKS & ADJUSTMENT
OFFSET VOLTAGE ADJUSTMENT OF BC1
PART LIST (CS01/RC01)

#### **CORDING GUIDE**

#### Wiring Notation



#### 2 Symbol Description



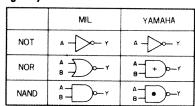
#### 3 Abbreviations of Wire Color Codes

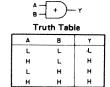
	, outs	
BLACK(クロ)······BL	$BROWN(\mathcal{F}\forall)\cdots\cdots\cdotsBR$	RED (アカ) ······RE
ORANGE(ダイ)OR	YELLOW ( ‡ イ )YE	GREEN( ₹ )GR
BLUE(アオ)BE	VIOLET ( Δ ラ )················ν	GRAY (ハイ)GY
WHITE(シロ)WH	GRASS GREEN(クサ)······GG	SKY BLUE(ソラ)······SB
PINK( = = )PK	TRANSPARENT(トウメイ)TR	

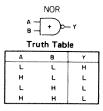
#### 4 Relation of Color Coding and Notes

С	C =	D	D	£	F	F♯	G	G ==	Α	A =	В
							***************************************	-			
BR	RE	OR	YΕ	GR	BE	VI	GY	WH	GG	SB	PK
(チャ)	(アカ)	(ダイ)	(キイ)	( ≥ F )	(アオ)	(ムラ)	(ハイ)	(シロ)	(クサ)	(ソラ)	$(\pm \pm)$

#### 5 Logic Symbols







Exclusive OR (排他的論理和)					
Tru	ith Tabl	e			
Α	В	Y			
Ļ	L	L			
н	L	н			
Ł	н	н			
н	н	L			
A 8	AND	Y			

А - 9 - Тг	ruth Tab	Y le
Α	В	Υ
L	L	L
н	L	L
L	н	Ł
н	н	н

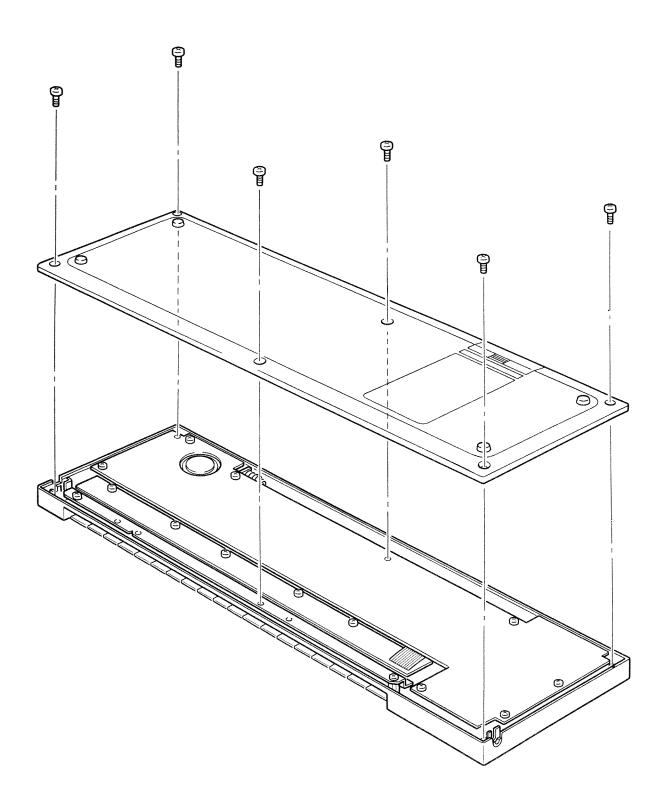
NOT (Inverter)					
Truth	Table				
Α	Y				
L	н				
Н	L.				
NA	NAND				

8-		Y
T	ruth Tal	ble
Α	В	Y
L	L	н
н	L	н
L	н	н
н	н	L

## DISASSEMBLY PROCEDURE

#### • Removal of Bottom Panel

Remove all screws illustrated above and take away the bottom panel.



#### **SPECIFICATIONS**

KEYBOARD 32 keys, F2 ~ C5

LFO Speed 0.8 ~ 21 Hz

GLISSANDO | Speed  $0 \sim 6 \pm 2$  Sec.

VCO PITCH - ~ 0 ~ +

FEET 4', 8', 16', 32', NOISE WAVE ∧ , N , □ , N , PWM

PWM Speed  $0.6 \sim 12 \text{ Hz}$ 

VCF CUT OFF L ~ H

RESONANCE H/L

EG DEPTH 0~10

VCA EG DEPTH 0~10

EG ATTACH TIME S~L

DECAY TIME S~L SUSTAIN LEVEL 0~10

RELEASE TIME S~L

WHEELS PITCH BEND 1 oct

MODULATION VCO/VCF

BREATH CONTROL VCF 0 ~ 10

VCA 0~10

POWER SWITCH/VOLUME 0 ~ 10

SIDE PANEL LINE OUT 10 kΩ

PHONES 8  $\sim$  150  $\Omega$ 

DC IN (use PA-1 adaptor)

**BREATH CONT. IN BC1** 

POWER SOURCE "R6" or "AA" battery x 6 (9 V)

AC Adaptor PA-1 (DC 12 V, 300 mA)

POWER CONSUMPTION No Output, 550 mW

Maximum Output, 2700 mW

DIMENSIONS (WxHxD) 489 x 36 x 160 mm (19-1/4" x 1-1/2" x 6-3/8")

WEIGHT | 1.5 kg (3 lbs, 5 oz)

ACCESSORIES Breath Controller BC1

**ACAdaptor PA-1** 

Soft Case SC-01

Stereo Headphone MH10

Specifications are subject to change without notice.

## CHECKS & ADJUSTMENT

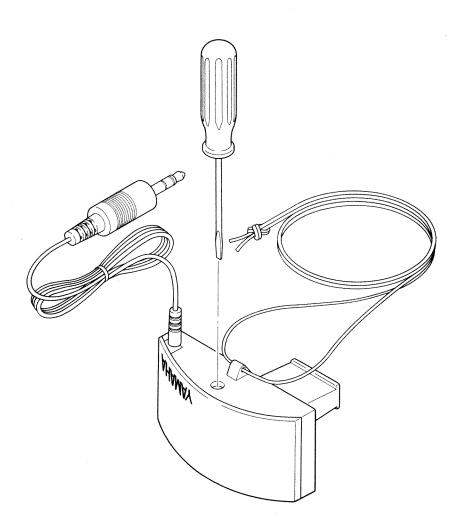
## 調整基準 ADJUSTMENT

Adjustment	Measurment	Control Setting	Value	Adjustment Location
調整項目	測定点	セッティング	測定値	調整VR
M aster OSC	TP7	PITCHCenter	565.3 ± 0.5 KHz	VR3
White Noise	TPI	FEETWN	— 15 ± 1 dBm	VR2
		Set Pin 2 of FREQ CUT OFF lever to 0.8V with it FREQ CUT OFF	Peak Point	VR4
VCF	TP3	で、その2ピンを0.8Vにする   RESONANCE	2Vp-p	VRI
Battery Indicator		and off when battery voltage is と0.5V以下でLEDが点滅します。	less than $6.5 \pm 0.5$ V	

#### OFFSET VOLTAGE ADJUSTMENT OF BC1

The CS01 produces a sound even when the BC1 is not blown. Or no sound is produced unless BC1 is blown hard to a certain degree. In this case, adjust the trim potentiometer for the BC1 in the following manner:

- 1. Place the CS01 in the basic setting specified in the instruction manual, and set the breath control VCA knob to "10".
- 2. Connect the BC1 to the CS01.
- 3. Using a small screwdriver, turn the BC1 trim potentiometer all the way to the right, and sound will be produced through the CS01. Next, turn it slowly to the left and when the CS01 stops sounding, stop turning the trim potentiometer.

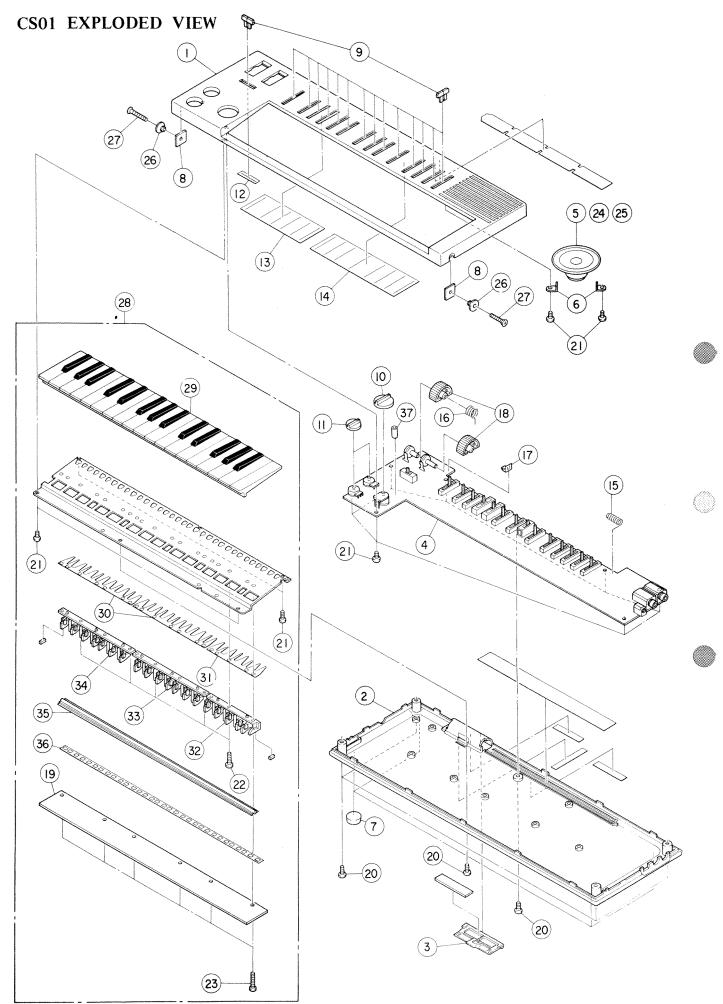


## YAMAHA

COMBO SYNTHESIZER CS01/BC1

PARTS LIST

03-06-04-013



#### Mechanical Parts (内装部品)

Ref. No.	Part No.	Description	1	(部 品 名)	Remarks	Common	
1	CB 82 51 90	Top Case		上ケース			
2	CB 82 52 00	Bottom Case		下ケース			
3	CB 82 52 10	Battery Cover		電池蓋			
4	NA 80 90 60	Circuit Board, PN	<b>#8937</b>	PNシ-ト			
5	JA 06 52 10	Speaker		スピーカー			
6	AA 82 42 50	Holder,Speaker		スピーカー固定金具			
7	CB 03 71 20	Leg		スベリ座	<del> </del>		
8	AA 82 42 20	Nut,Strap pin		特殊ナット			
9	CB 82 52 20	Knob, Slide		ツマミ	<del>                                     </del>	<b>-</b>	
10	CB 82 52 30	Knob, Rotary, Large		н	VOLUME		
11	CB 82 52 40	Knob, Rotary, Small		11	BREATH		
12	CA 8C 33 00	Dust-proof Cover	40×10×0.35	防塵クロス	CONTROL		
13	CA 80 33 10	-do-	108×47×0.35	123.22	<u> </u>		
14	CA 80 33 20	do	153.5×47×0.35	и			
15		Spring, Battery		接点バネ			
16	<del></del>	Spring, wheel		ホイール戻りバネ		-	
17		Terminal, Battery		端子板		-	
18	CB 82 52 50			- 端子板 ホイール			
19		Circuit Board, MK	#8939	MKシート		-	
20		Binded Tapping Schew	#8939 3×10 BI				
21	Ei 33 00 80	., 0		パインド・タッピング・ネジ			
22	Ei 03 01 40		3×8 BI	"			
	<del> </del>		3×14 Ye	n		-	
23	Ei 03:01:80		3×18 Ye	"			
	LB 20 13 80		H2P-SHF	2Pハウジング	JA06521	-	
25	BB 00 44 30			コンタクト・ピン	JA06521		
26	BB 80 11 70			層掛けバンド・ピン		SG800	
		Oval Head Screw	3×16 Cr	丸皿小ネジ			
		Keyboard Assembly		鍵盤Ass'y			
29	CB 04 03 70	······································	F	白鍵		PC-100	
	CB 04 03 80	-do-	G	п		PC-100	
	CB 04 03 90	-do-	Α	H		PC-100	
	CB 04 04 00	do	В	U U		PC-100	
	CB 04 04 10	-do-	С	n .		PC-100	
	CB 04 04 20	-do-	D	n .		PC-100	
	CB 04 04 30	-do-	E	"		PC-100	
	CB 04 04 40	-do-	F', C'	И		PC-100	
	CB 04 04 50	Black Key		黒鍵		PC-100	
30	AA 05 30 70	Sqring, Keydoard	F12	鍵バネ			
	AA 05 30 80		F8	y			
32	CB 04 04 80	Holder	F8	ホルダー	about a source		
	CB 04 04 70		F12	"			
34	CB 04 11 20	do	LF12	n.			
		Rubber Contact	F32-6	可動導伝コム			
		Insulation Spacer		絶縁スペーサー			
	CB 82 52 60			LEDスペーサー			
-						+ +	
						-	
		<del></del>					
1							

<sup>※:</sup>New Parts (新部品)

#### Electrical Parts (電気部品) (1/2)

Ref. No.	Part No.	Descri	ption	(部 品 名)	Remarks	Common model	
	NA 80 90 60	Circuit Board, PN	#8937	PN>ト			
	iG 02 60 00	IC	iG02600	IC	VCA		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	iG 02 60 10	do	iG02601	"	VCF		
	iG 04 58 00	-do-	LA4138	n	Power Amp.		
	iG 05 38 00	-do-	M5232L	"	LED Driver		
	iG 06 12 00	-do- 500mA9v	<b>NJM78M</b> 09H	"	Regu lartor		
	iG 06 82 00	-do-	TC7476BP	n	FF		
	iT 10 15 00	ando-	YM10150	Я	DTG		
	iA 10 15 70	Transistor	2SA1015(0,Y)	トランジスタ			
	iA 11 64 00		2SA1164(Y)	"			
	iC 07 52 20		2SC752(Y)	"			
	iC 18 15 70		2SC1815(0,Y)	"			
			2001010(0,17				
-	iE 00 00 10	FET .	2SK30A(Y)	FET		<del>  </del>	_
	- 30,00,10		201007(1)	1-1		1	-
	iF 00 00 40	Diode	1S1555	ダイオード			
	iF 00 03 00		1S1555 1S1715P			<del> </del>	
	iF 00 03 00			ツェナー・ダイオード			
	1		WZ5.6	# 1.ED			
	iF 00 11 90		TLR-124	LED		-	
	iF 00 14 70		RD6.2EB2	ツェナー・ダイオード			
	iH 00 05 90	Diode	10E-1	ダイオード			
					FREQ CUT		
	<del>                                     </del>	Slide Pot, Resistor	Α10ΚΩ	スライド・ボリューム	OFF		
	HQ 46 00 20		Β10ΚΩ	"	PITCH, VCF EG, SASTAIN		
	HQ 46 00 40		A1MΩ SW	Н	GLISSANDO		
	HQ 46 00 50	-do-	SB10KΩ	"	VCA EG- DEPTH		
	HQ 46 00 60	-do-	C500K Ω	n	PWM SPEED		
	HQ 46 00 70	-do-	RD1MΩ	И	LFO SPEED		
	HQ 46 00 90	-do-	A2MΩ	п	ATTACK,DECA- Y, RELEASE		
	HS 31 17 50	Rotary Pot. Resistor	B10K	ロータリー・ボリューム	BREATH CONTROL		
	HS 31 17 60	do	A10K, SW	"	POWER VOLUME		
	HS 31 18 00	-do-	A10K, 90°	"	PITCH BEND		
	HS 31 18 10	do	B10K, 90°	n n	MODULA- TION		
					1,		
	HT 77 00 60	Trim Pot. Resistor	B10K	半固定抵抗	Noise		
	HT 77 00 70		B20K	"	Master Clock, VCF Q		
	HT 77 00 90		B100K	и	VCF tc		
					1		
	HU 57 71 20	Metal Film Resistor	12ΚΩ	金属皮膜抵抗			
	HU 57 72 70		27ΚΩ	並屬及肤松机			_
	HU 57 73 30		33ΚΩ	"			-
	HU 57 82 20		220ΚΩ	" "		-	
	57 62 20	40	220152	И		-	_
	H7 00 25 60	Motal Film Basistan	2 2 2 2	)) m maj lot 1.1.			
	nz 00 25 60	Metal Film Resistor	2.2ΚΩ	リニア抵抗	-		
	11: 20 00 00	Calla Barri	4000				
	ni 20 99 90	Solid Resistor	10ΜΩ	ソリッド抵抗	-		
i		Mylar Capacitor					
			0.1	小型マイラーコン			4

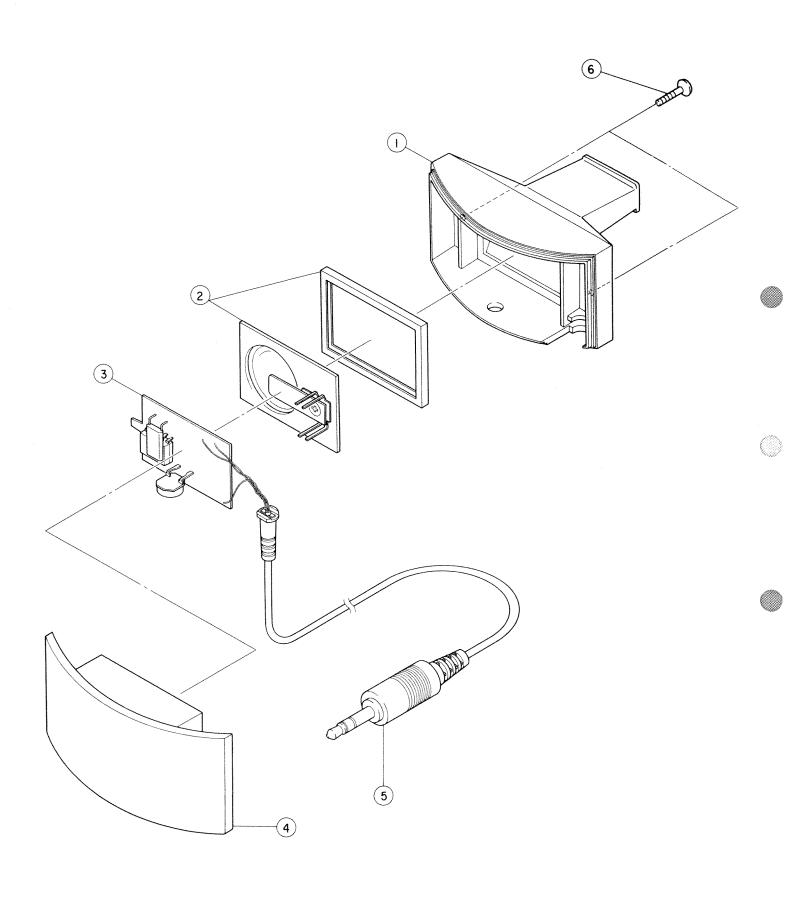
※: New Parts (新部品)

#### Electrical Parts (電気部品) (2/2)

Ref No.		Descript	tion	(部 品 名)	Remarks	Common model	Anapopoli
	UJ 12 74 70	Electrolytic Capacitor	47μF/10V	ケミコン			
	UJ 12 81 00	-do-	100μF/10V	н			
	UJ 12 84 70	-do-	470µF/10V	n			
	UJ 12 91 00	-do-	1000μF / 10V	p p			
	UJ 13 71 00	-do-	10 <sub>μ</sub> F/16V	<i>n</i>			
	UJ 13 72 20	-do-	22μF/16V	И			
	UJ 14 64 70	do	4.7μF/25V	п			
	UJ 16 54 70	-do-	0.47 <sub>µ</sub> F/ <sub>50V</sub>	li .			
	UJ 16 61 00	do	1 <sub>μ</sub> F/50V	ıt.			
	UJ 16 62 20	-do-	2.2 <sub>μ</sub> F/50V	н			
	UK 34 64 70	Bipolar Electrolytic Capacitor	4.7 <sub>μ</sub> F/25V	BPケミコン			
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , , , , , , , , , , , , , , , , , , ,				
	KA 40 10 50	Slide Switch	2-2	スライド・スイッチ	RESONANCE,		
	KA 40 10 60		2-5	"	FEET, WAVE		
				,,	· LCI, VV AVE		
	LB 20 14 10	Base pin 2.5pitch	SE BS2P-SHF	NHコネクター	Speaker		
	LB 20 21 40		S-G9312	DC-INジャック	DC-IN		
		Jack, Mini, Stereo	S-G8040		BREATH		
		Phone Jack, Stereo	3-00040	ステレオ・ミニ・ジャック	CONTROL		
		Base Pin 2.5pitch	CE DO12D CUE	フォーン・ジャック	Phones	-	
	LB 00 29 10	Dase FIII Z.SPITCH	SE BS12P-SHF	NHコネクター	Key Cord		
	AA 92 42 22	Carina Batta		14 h			
*************		Spring, Battery		接点バネ			
	AA 82 42 40	Spring, Wheel		ホイール戻りバネ			
	DD 65					ļ	
	BB 80 18 70	Terminal, Battery		端子板			
	CB 82 52 50			ホイール			
	CB 82 52 60	LED Spacer		LEDスペーサー			
		Pan Head Screw	2.6×6 Ye	ナベ小ネジ	NJM 78M09H		
	EV 10 02 60	Hexagonal Nut	2.6	六角ナット	NJM 78M09H		
	1 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
	NA 80 90 80	Circuit Board, MK	#8939	MKシート			
	iF 00 00 40	Diode	1S1555	ダイオード			
							and a second
	Mi 80 13 50	Flat Cable	12P	フラットケーブル	1		
~~~~~							
	BB 00 44 90	Contact	SHF-001T08CS	コンタクト			
	LB 60 29 20	Housing 2.5pitch	H12P-SHF	2.5ピッチ・ハウジング			
***************************************	+						
-	1 1 1 1 1						
	+ + + + + +				+	<del> </del>	

※:New Parts (新部品)

### **BC1 EXPLODED VIEW**



#### Mechanical Parts (内装部品)

Ref. No.		art	: No	٥.	Description		(部 品 名)	Remarks	Common model		
1	СВ	82	53	30	Mouthpiece		マウスビース				
2	iT	43	90	40	Senser Unit		センサーユニット				
3	NA	80	90	70	Circuit Board, BC		BCシート				
4	NB	82	42	60	Front Case Ass'y		フロントケース				
5	Mi	80	13	40	Plug, Minutia		ミニプラグ				
6	EM	32	61	00	Oval Head Tapping Screw	2.6×10 BL	丸皿タッピンネジ				
	СВ	82	53	60	Soft Case		ソフトケース				
								***************************************			
			***************************************								
										~~~~	
									1		<u> </u>
									+		

<sup>※:</sup>New Parts (新部品)

#### Electrical Parts (電気部品)

	Ref. No.	ı	Part	: No	).	Description		(部 品 名)	Remarks	Common model		
*		NA	80	90	70	Circuit Board, BC		BCシート				
		iG	00	13	90	IC	NJM45558DV	IC				
		iF	00	00	40	Diode	1S1555	ツェナーダイオード				
		iF	00	16	60	Zener Diode	RD3.6EBI	ツェナーダイオード				
*		НҮ	00	15	20	Semi Variable Resister	Β-50ΚΩ	半固定抵抗				
					1		•					
l			,								***************************************	
ŀ												
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※:New Parts (新部品)

#### CS01 SERVICE MANUAL

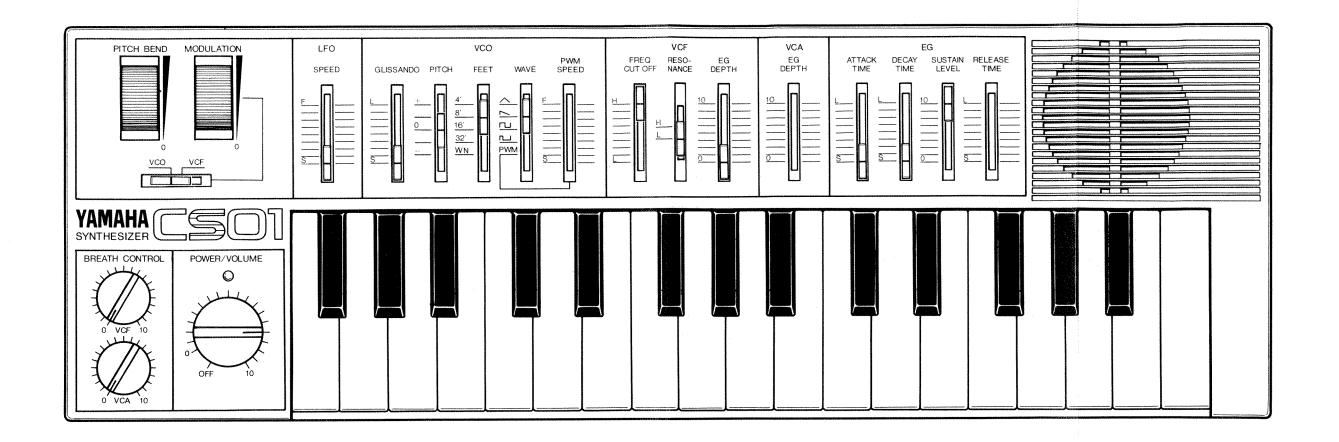
1982年 5月 初版発行

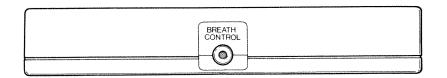
発 行 所:日本楽器製造株式会社

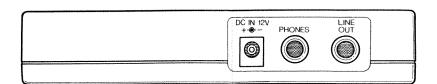
電音サービス課

版下・印刷: クニムラ印刷紙器株式会社

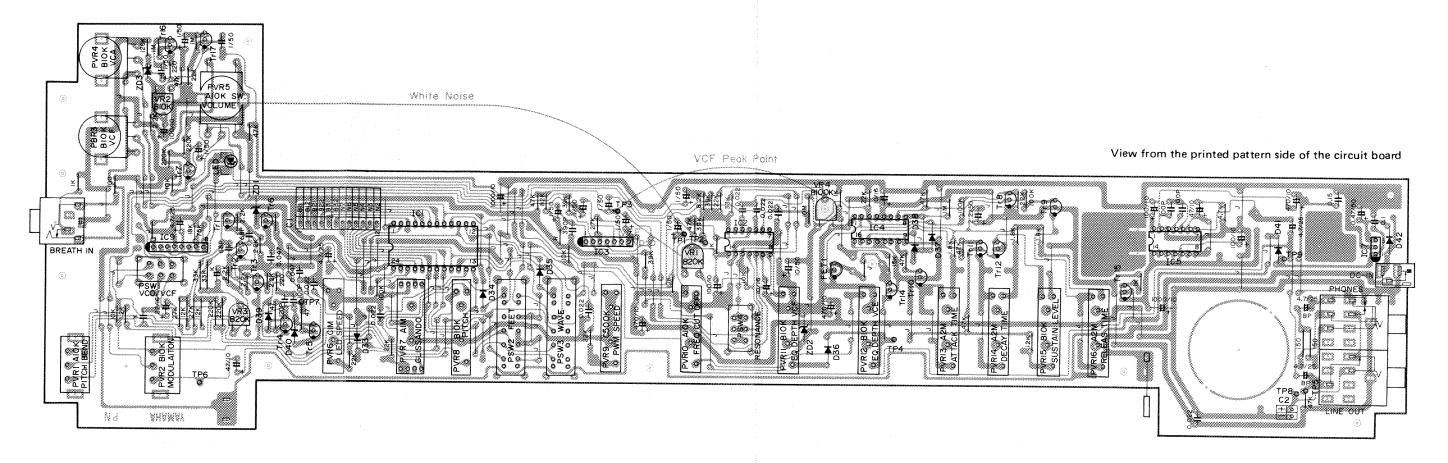
### PANEL LAYOUT



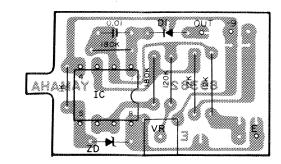




## PN CIRCUIT BOARD BC CIRCUIT BOARD (BC1)



#### View from the component side of the circuit board



#### NOTE)

1. IC : NJM4558DV

2. Diode

Di : 1S1555 ZD : RD3.6EB1

#### KEC-90564-1Z KEC-90563-1X

#### NOTE)

1. IC

IC1 : YM10150 IC2 : iG02610 : iG02600 IC4 : TC7476BP IC5 : LA4138 IC6 : M5232L IC7 : NJM78M09H

#### 2. Transistor

 $Tr 1 \sim 3.5$ : 2SC752 (Y) Tr 4 : 2SA1164 (Y) Tr 8, 9, 11, 12, 15 ~ 17 : 2SC1815 (O, Y) Tr 8, 10, 14, 16 : 2SA1015 (O, Y)

3. FET

FET1 : 2SA30A (Y)

#### 4. Diode

 $D1 \sim 40$  : IS1555 D41, 42 : 10E-1 ZD1 : WZ5.6 ZD2 : RD6.2EB2 ZD3 : IS1715P LED : TLR-124

## CSO1 BLOCK DIAGRAM 006892

